



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/478,168

01/05/2000

Michael Meyer

34645-00488USPX

1323

38065

7590

04/05/2005

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR C11
PLANO, TX 75024

EXAMINER

BLOUNT, STEVEN

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. **UK**

09/478,168

Applicant(s)

MEYER ET AL.

Examiner

Steven Blount

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 35 - 37, 40 - 46, 50, and 53 - 68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15, 45, and 61 - 68 is/are allowed.
- 6) ☒ Claim(s) 35, 36, 37, 40 - 44, 46, 50, and 53 - 60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 35 – 37, 40, 42 – 44, 46, 50, 53 – 54, 56 – 58, and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants admitted prior art (hereinafter AAPA) in view of U.S. patent 5,974,028 to Ramakrishnan.

With regard to claim 35, AAPA teaches:

- 1) Means for dividing the data: see page 1, lines 6+.
- 2) Transmitter: note that a "retransmitter" must include a transmitter originally
- 3) Means in the receiver for acknowledging correct receipt of the transmitted data: see page 1, third paragraph.
- 4) Data loss detection means: see the time-out feature on page 2, lines 6+.
- 5) Receiving means: note the original receiver; see page 1, lines 27 – 28.
- 6) Flow control adapting means: see page 2, lines 11 – 14: "In TCP, the time-out response consists in retransmitting the data that was not acknowledged the data that was not acknowledged, and resetting one or more flow control parameters."

On page 7, last paragraph, increasing the time out period is mentioned.

Art Unit: 2661

7) Data unit loss response mechanism: Note the system of AAPA continues transmitting data units after retransmission, and see also page 2, lines 11 – 13, mentioning retransmission and setting flow control.

8) Excessive delay response: see the mention of congestion window in line 16 of page 4 of AAPA. Congestion window is also mentioned in col 7 lines 8+ of Ramakrishnan.

AAPA does not, however, teach the flow control adapting means and the data unit loss response mechanism acting together, nor does AAPA explicitly teach a determining means for determining from the acknowledgements whether the correctly received data unit was the initial data unit, or a retransmitted data unit; *nor does AAPA teach having a congestion window parameter which is increased to compensate, at least partially, for any reduction in the window parameter made in response to detecting the failure of the receiver to receive the initial data unit.*

Ramakrishnan teaches the last mentioned determining means. See col 5, lines 45 – 55, in which it is stated in part:

“Note that a SACK indicating proper receipt of a retransmitted packet previously received with bit error, for example the SACK shown in FIG. 2C, is distinct from the previous SACK that indicated the receipt of a packet with bit error, for example the SACK shown in FIG 2B. Consequently, the SACK indicating proper receipt of a retransmitted packet previously received with bit error is not treated as a duplicate SACK *and, thus, no congestion mechanisms are invoked*” (emphasis added).

Art Unit: 2661

Thus, the system uses the totality of the sequences to determine if there has been a retransmission.

Ramakrishnan also teaches the above two mentioned mechanisms acting together. See col 3, lines 35+: "The receiver distinguishes between packets received with non-congestion bit errors and packets having been not at all received due to congestion."

See also col 4 lines 40+ generally where flow adapting means in response to data loss (data error) are discussed, wherein:

"The timing by which communication device 40 sends SACKS can be based on a number of performance factors and/or predetermined factors. For example, the SACK can be sent once a certain number of packets have been received by communication device 40...Alternatively, the SACK can be sent after a timeout period, after the number of received packets equals a fraction of a congestion window, or by any combination of a timeout period and the number of packets received."

With respect to the excessive delay response, this is (also) taught in Ramakrishnan, and is thoroughly discussed in columns 6 and 7. See especially col 7 lines 8+ where the congestion window is discussed.

Finally, it is also noted that Ramakrishnan also teaches that "When transmitted packets fail to be received by the sender for reasons other than congestion, however, congestion compensation measures, such as reducing the window size, result in an unnecessary reduction in end-to-end throughput and suboptimal performance." (col 2, lines 30+).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the flow adapting means and excessive delay response together in the communication system of AAPA, and to have also used a means for determining from the acknowledgements whether the correctly received data unit was the initial data unit or a retransmitted data unit, in light of the teachings of Ramakrishnan, and used a flow control means wherein a congestion window parameter is increased to compensate for any reduction in the congestion window made in response to detecting the apparent failure of the receiver to receive the initial data unit in light of the teachings of Kalampoukas et al, in order to increase the system performance and throughput.

Claim 36 : see the discussion of the timer/timeout mechanism above.

Claim 37: duplicate Ack: see page 5, second paragraph of AAPA.

Claims 40 and 42 - 44: marking means are taught in col 7 lines 58+.

Claim 46: timeout period adjustment is discussed in AAPA, as discussed above.

Claim 50: see the rejection of claim 35, where each of the claimed features of this method claim is discussed.

Claim 53: timeout is mentioned in col 5 lines 4+ and col 6 lines 30+ of Ramakrishnan.

Claim 54: duplicate acknowledgment is in AAPA, as discussed above.

Claim 56 - 58: see the rejections of claim 1, and also note that the use of markers are used in Ramakrishnan, as discussed above.

Claim 60: see the rejection of claim 35 above.

Art Unit: 2661

3. Claims 41, 55, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants admitted prior art (AAPA) in view of U.S. patent 5,974,028 to Ramakrishnan as applied above, and further in view of U.S. patent 6,041,352 to Burdick et al.

AAPA/Ramakrishnan teach the invention as described above, but do not teach using time stamps in the flow control. This is taught in Burdick et al. See the abstract, and note that Burdick et al is used to monitor response times and determine where a slowdown in the traffic is occurring.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have used timing stamps in the apparatus of AAPA/Ramakrishnan et al, in light of the teachings of Burdick et al, in order to help control the flow of information in the system.

4. Claims 15, 45, and 61 - 68 are allowed.

Response to Arguments

5. Applicant's arguments filed 10/21/2004 have been fully considered but they are not persuasive.

The applicant has claimed the use of an "excessive delay response mechanism" (see claim 35, second to last paragraph). Ramakrishnan teaches that "any number of congestion mechanisms can be invoked." Ramakrishnan then teaches that a slow start algorithm is used. The examiner notes that the slow start algorithm is one of a number of congestion window flow control methods used to ensure proper flow control. The examiner also notes that in column 2, this method is briefly discussed, when it is stated

Art Unit: 2661

that "when a loss occurs, the window size is reduced and then slowly expanded" (lines 5+). Applicants amended claims are similar to this process, such that the examiner believes that one of ordinary skill in the art would have found the invention obvious at the time of the invention.

As claimed, when the packets are lost (ie, when the receiver fails to receive the initial data unit) the congestion window acting as a flow control mechanism is increased to compensate for this. Ramakrishnan teaches the use of a similar flow control mechanism involving increasing the window size. See col 7, lines 5+: "the congestion window is increased to two." The examiner believes that it would be obvious to one of ordinary skill in the art to have the congestion window act generally as a simple regulatory mechanism without having it return to a set value before it is increased.

The examiner notes that the best support that he could find in the specification for the amended claims is on page 9, third paragraph, where it is stated that "selected adaptive parameters that are used for the flow control are stored and then reset to predetermined values in step S2," and that "the congestion window is typically reset to a value of one segment..." (it is noted that applicant also stated in the second to last line on the page that "the invention is applicable to any flow control principle and the associated parameters"). The examiner notes that in the passages cited by applicant in paragraph 3 of page 28 of the Remarks/Arguments portion of the amendment, the response to the delay is not cited "to compensate at least partially for any reduction of the congestion window parameter made in response to detecting the apparent failure of the receiver to receive the initial data unit" (final paragraph of claim 35). Finally, the

Art Unit: 2661

examiner maintains that as a term of art, "lost" is the equivalent of being excessively delayed outside the time window.

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Ajit Patel
Primary Examiner

SB

3/31/05